Mathematician announces that he's proved the ABC conjecture

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(Phys.org)—In all of history there are very few names that stand out in the field of mathematics, at least among those not in the field: Euclid, Newton, Pythagoras, etc. This is likely due to several reasons, chief among them is that math is so seldom used by most people and the fact that its use in other sciences causes the underlying concepts to become overshadowed. That might change if what Shinichi Mochizuki of Kyoto University is claiming is true; that he has written a proof of the ABC conjecture. To mathematicians it's akin to the Grand Unified Theory of physics, a proof that would tie together most of the fundamental ideas in the field into one neat, fully explainable bundle.

The ABC conjecture is at its core, an association between whole numbers and is formed on the basis of the simple mathematical equation a+b=c and involves what are known as square free numbers; numbers that can't be divided by a number squared. Square free numbers are described using sqp(n) where n is the biggest such number that can be calculated by multiplying factors of n which are prime numbers. The whole idea was first proposed by two mathematicians working separately back in 1985.

While the concept of the ABC conjecture is not all that complex in and of itself, providing proof of it has proven to be impossible, until now, maybe. The proof Mochizuki came up with is 500 pages long and involves concepts that very few people understand, thus, it will likely take years of serious work by many mathematicians to prove that the proof is correct.

Anyone that has sat through higher level math classes that call for creating proofs can attest to the monumental effort that must have gone into creating such a proof, though virtually all mathematicians would agree that if the proof is indeed correct it will have been more than worth the effort. In fact, many suggest it would mark one of the most profound achievements in mathematics history, not only because of the proof itself but because of what it would mean to the science as a whole. In proving this one conjecture, many other proofs involving many other theorems would naturally follow. It would be as if Mochizuki had conceived and written proofs for hundreds of other important theorems all at once, including the famous Fermat's Last Theorem.

More information:

Mochizuki, S. *Inter-universal teichmuller theory*, 4 parts:

www.kurims.kyoto-u.ac.jp/~moti … ler%20Theory%20I.pdf
www.kurims.kyoto-u.ac.jp/~moti … er%20Theory%20II.pdf
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